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Stephen A. Payne

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MICROBAN PRODUCTS COMPANY

11400 VANSTORY DRIVE

HUNTERSVILLE, NC 28078

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte STEPHEN A. PAYNE

Appeal 2009-2638
Application 10/521,829
U.S. Patent Publication 2006/0014810
Technology Center 1700

Decided: April 28, 2009¹

Before: FRED E. McKELVEY, *Senior Administrative Patent Judge*,
and RICHARD TORCZON and MICHAEL P. TIERNEY, *Administrative
Patent Judges*.

McKELVEY, *Senior Administrative Patent Judge*.

DECISION ON APPEAL

1 A. Statement of the case

2 Microban Products Company, a subsidiary of Microban International,
3 Ltd. ("Microban"), the real party in interest, seeks review under 35 U.S.C.
4 § 134(a) of a final rejection (mailed 21 September 2006).

¹ The two-month time period (37 C.F.R. § 1.304) for filing an appeal (35 U.S.C. § 141) or commencing a civil action (35 U.S.C. § 145) begins to run from the decided date shown on this page of the decision. The time period does not run from the Mail Date (paper delivery) or Notification Date (electronic delivery).

1 The claims on appeal are claims 23-28, 31-35, 37-47 and 49-68.

2 Appeal Brief, page 5.

3 All other claims have been cancelled. Appeal Brief, page 5.

4 The Examiner relies on the following prior art:

Bryant	5,087,457	11 Feb 1992
Austin	5,290,810	01 Mar 1994
Rother	5,888,415	30 Mar 1999
Pillay	6,110,950	29 Aug 2000
Lindner	6,228,382	08 May 2001

5

6 The reader should know that "et al" is not used in this opinion.

7 All prior art cited by the examiner is prior art under 35 U.S.C.

8 § 102(b).

9 We have jurisdiction under 35 U.S.C. § 134(a).

10

11 B. Findings of fact

12 The following findings of fact are supported by a preponderance of
13 the evidence.

14 References to the specification are to U.S. Patent Publication
15 2006/0014810.

16 To the extent that a finding of fact is a conclusion of law, it may be
17 treated as such.

18 Additional findings as necessary may appear in the Discussion portion
19 of the opinion.

The invention

The Microban invention relates generally to processes for fabricating leather having antimicrobial properties. Specification, ¶ 0002.

According to Microban, human fungal infections (i.e., mycosis) and other skin diseases have been linked to fungal colonization of leather shoes. Specification, ¶ 0006.

Researchers are said to have long sought methods for preventing (1) microbial colonization of leather goods and (2) the occurrence and transmission of microbial infections via leather goods. Specification, ¶ 0007.

Further according to Microban, what is needed is durable antimicrobial leather, which remains resistant to bacteria, fungi, mold and mildew long after the finishing process. Specification, ¶ 0010.

Still further according to Microban, the antimicrobial agents should be available throughout the leather, inside and on the surface, to thoroughly protect the leather from stain and odor causing microbes, including bacteria and fungi. Specification, ¶ 0010.

In broad terms the Microban invention encompasses leather goods having durable antimicrobial properties because they possess antimicrobial agents. Specification, ¶ 0011.

The term "antimicrobial agent" is used by Microban to encompass materials, typically chemicals that kill microbes or retard the growth of microbes to a commercially acceptable degree. Specification, ¶ 0011.

Microban uses the term "antimicrobial agent" to mean "bactericides and fungicides and other such agents." Specification, ¶ 0011.

1 The Microban invention involves the use of a composition for treating
2 leather during the wet portion of the tanning process. Specification, ¶ 0012.

3 The composition comprises (1) a broad-spectrum bactericide, such as
4 triclosan, in combination with (2) a fungicide such as tolyldiiodomethyl-
5 sulfone. Specification, ¶ 0012.

6 The scientific name for triclosan is chloro-2-(2,4-dichlorophenoxy)-
7 phenol and is said to be commercially available from a number of
8 commercial sources. Specification, ¶ 0012.

9 Tolyldiiodomethylsulfone also is said to be commercially available.
10 Specification, ¶ 0012.

11 In preferred embodiments the antimicrobial composition comprises a
12 fungicide and a bactericide in a ratio between about 1:50 and 10:1 fungicide
13 to bactericide. Specification, ¶ 0017.

14 In particularly preferred embodiments the fungicide is present in
15 the antimicrobial composition between about 200 ppm and about 5,000 ppm,
16 and the bactericide is present in the composition between about 500 ppm and
17 between about 10,000 ppm based on the weight of the leather goods.
18 Specification, ¶ 0017.

19 The bactericide may be selected from the group consisting of
20 (1) triclosan, (2) a biguanide, (3) poly(oxyethylenedimethylimino)ethylene-
21 (dimethylimino)-ethylenedichloride), (4) isothiazolinone, and (5) quaternary
22 ammonium compounds. In preferred embodiments the bactericide is
23 triclosan or polyhexamethylene biguanide. Specification, ¶ 0018.

1 The fungicide may be selected from the group consisting of
2 (1) tolyldiiodomethylsulfone, (2) zinc 2-pyridinethiol-1-oxide,
3 (3) propiconazole, (4) thiabendazole, and (5) tebuconazole. A preferred
4 fungicide is tolyldiiodomethylsulfone. Specification, ¶ 0019.

5 Claims on appeal

6 Claims 23-28, 31-35, 37-47 and 49-68 are on appeal.

7 Claim 23, reproduced from the Claims Appendix beginning on
8 page 24 of the Appeal Brief, reads [bracketed matter and some indentation
9 added]:

10 A method for aqueous treatment of leather, comprising:

11 [1] cleaning the leather;

12 [2] a first soaking of the leather in an antimicrobial
13 composition in the presence of an emulsifier wherein the
14 antimicrobial composition comprises a biguanide bactericide
15 and a fungicide and wherein the fungicide and biguanide
16 bactericide are present in the composition in a ratio between
17 about 1:50 to about 10:1 fungicide to biguanide bactericide;

18 [3] a first soaking of the leather in fat liquor and wherein
19 the first soaking of the leather in an antimicrobial composition
20 occurs prior to or concurrent with the first soaking of the leather
21 in fat liquors;

22 [4] soaking the leather in an aqueous solution containing
23 a tanning agent; and

24 [5] rinsing the leather.

25 Other claims are addressed in the Discussion portion of the opinion.

Prior Art

(1) Pillay U.S. Patent 6,110,950

As noted by the Examiner (Examiner's Answer, page 3), Pillay describes the use of a "synergistic" mixture of (1) propiconazole and (2) 2-mercaptobenzothiazole (2-MBT) in ratios of 99:1 to 1:99 to control the growth of microorganisms *inter alia* in leather products. Col. 2:26-31 and 49.

Propiconazole is a known fungicide. Col. 3:23-39.

Pillay reveals (*italics added*):

When two chemical microbiocides are used in combination, either in a single composition or as two separate additions at the point of use, three results are possible: 1) an additive (neutral) effect; 2) an antagonistic effect; or 3) a synergistic effect. An additive (neutral) effect has no economic advantage over the individual microbiocides. An antagonistic effect would produce a negative result. Only synergism, which is much less likely than an additive or an antagonistic effect, gives a positive result and, therefore possesses *economic* advantages.

According to the invention, the combination of propiconazole and 2-mercaptobenzothiazole (2-MBT) or an alkali metal salt thereof demonstrates an unexpected, synergistic microbicidal effect.

Col. 2:65 through col. 3:11. See also col. 3:18-22.

(2) Austin U.S. Patent 5,290,810

As noted by the Examiner, Austin teaches treatment of leather with biocidal compounds to improve antibacterial properties. Examiner's Answer, page 4; Austin, col. 1:4-12.

Biocidal compounds said to be useful by Austin include (1) guanidine derivatives, such as polyhexamethylene biguanide and 1,6-hexamethylene-bis[5-(4-chlorophenyl)biguanide] (col. 6:21-23) and (2) 2-MBT (col. 6:11).

(3) Other prior art references

Other prior art references are addressed in the Discussion portion of the opinion.

Examiner's Rejection of claim 23

The Examiner provided alternative rationales in support of the rejection of claim 23.

First: Given the functional equivalence of 2-MBT and the biguanides listed by Austin, it would have been obvious to substitute the biguanides of Austin for the 2-MBT of Pillay. Examiner's Answer page 4, third full paragraph. By "functional equivalence" the Examiner means the two compounds are known to have the same use.

Second: Use of the known biguanide of Austin with the known "synergistic" mixture of Pillay to treat leather amounts to use of a mixture of two known elements (i.e., (1) the "synergistic" mixture and (2) the biguanide) for their respective known purposes. Examiner's Answer, page 4, fourth full paragraph.

C. Discussion

In presenting its appeal, Microban presents the following arguments:

1 (1) A.1 through A.12. Appeal Brief, pages 10-15.

2 (3) B.1 through B.5. Appeal Brief, pages 16-20.

3 (3) C.1. Appeal Brief, pages 20-23.

4
5 A.1 (Claims 23-28, 31, 34-35, 37-39 and 44)

6 Microban maintains that substitution of a biguanide of Austin for the
7 2-MBT of Pillay would destroy the "synergistic" nature of the Pillay
8 "synergistic" composition and therefore one skilled in the art would be
9 "taught away" from make the substitution.

10 The prior art teachings are not as narrow as Microban maintains, or
11 perhaps wishes.

12 What surfaces from the evidence is at least the following.

13 (1) Propiconazole is a known fungicide. Pillay,
14 col. 3:23-39.

15 (2) The biguanides polyhexamethylene biguanide and
16 1,6-hexamethylene-bis[5-(4-chlorophenyl)biguanide] are
17 known antimicrobial agents. Austin, col. 6:21-23.

18 (3) Both are being used in Microban's composition for
19 their respective intended purposes.

20 (4) In its Appeal Brief, Microban presents no credible
21 argument that use of its composition to treat leather results in
22 any unexpected result.

23 One skilled in the art uses known compounds for their known use.

1 *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398. 127 S. Ct. 1727 (2007),
2 counsels against non-obviousness under these circumstances. So does
3 *Agrizap, Inc. v. Woodstream Corp.*, 520 F.3d 1337 (Fed. Cir. 2008).

4 Also relevant to the analysis is *In re Kerkhoven*, 626 F.2d 846 (CCPA
5 1980) and *In re Pintin*, 459 F.2d 1053 (CCPA 1972), both cited by the
6 Examiner. Both cases hold that it is generally prima facie obvious to
7 combine two compositions each of which is taught by the prior art to be
8 useful with expectation that a combined composition would be useful for the
9 same purpose or purposes. We, like the Examiner, see no reason in this case
10 to depart from the general rule.

11 Contrary to urging by Microban, we decline to find that Pillay teaches
12 away from the use of a mixture of a fungicide and a biguanide. If one wants
13 Pillay's proffered "synergistic" property, then one skilled in the art would
14 use Pillay's composition. But, one skilled in the art is not limited to using
15 Pillay's composition to treat leather. Rather, one skilled in the art is free to
16 use both known fungicides and bactericides for their intended use because
17 both are in the public domain. We note that Microban in the Appeal Brief
18 does not discuss any unexpected result.

19 Relying on *Takeda Chemical Industries v. Alphapharm Pty., Ltd.*,
20 492 F.3d 1350 (Fed. Cir. 2007), Microban says that in cases involving "new
21 chemical compounds" an examiner cannot establish obviousness unless the
22 examiner identifies identify some reason that would have lead a chemist to
23 modify a known compound in a particular matter. The facts in this case
24 have nothing to do with the holding in *Takeda*. *Takeda* involved a new
25 chemical compound urged to have been obvious through an alleged obvious

1 modification of the chemical structure of known chemical compounds; this
2 case involves the use of known—and unmodified—chemical compounds in
3 combination to make a mixture of compounds—each being used for its
4 known prior art purpose. The relevant precedents (*Kerkhoven* and *Pintin*)
5 supply the "reason" which Microban seeks.

6 Microban notes that Pillay indicates that three results can take place
7 when one mixes two known microbiocides. Appeal Brief, page 11; Pillay,
8 col. 2:65 through col. 3:6. While an "antagonist" result is possible, the fact
9 is one skilled in the art knows the possibilities and is quite capable of mixing
10 and matching to determine which of the three results occurs. Microban fails
11 to explain why the general expectation would not be the additive (or neutral)
12 result as opposed to an antagonistic or a synergistic result, particularly in a
13 case where no reaction between the two compounds being used in
14 combination would be expected to occur.

15 Claims 24-28, 31, 34, 37-39 and 44 fall with claim 23. Appeal Brief,
16 page 10.

17 A.2 (Claims 45-47, 49-51 and 58-61)

18 Independent claim 45 is similar to claim 23 but additionally calls for
19 use of certain concentrations of fungicide and biguanide bactericide.

20 Our review of Microban argument A.2 does not reveal that any
21 additional argument over that in argument A.1 is presented.

22 Moreover, we cannot imagine that a skilled artisan would not be able
23 to determine appropriate concentrations of fungicides and bactericides. See,
24 e.g., Pillay, col. 4:45-64.

1 As a result, claim 45 falls with claim 23. A person skilled in the art is
2 not an automaton. *KSR*, 550 U.S. at 421, 127 S. Ct. at 1742.

3 Claims 46-47, 49-51 and 58-61 fall with claim 45. Appeal Brief,
4 page 13.

5 A.3 (Claim 32)

6 Claim 32 limits the fungicide to (1) tolyldiiodomethylsulfone,
7 (2) zinc 2-pyridinethiol-1-oxide, (3) propiconazole, (4) thiabendazole and
8 (5) tebuconazole.

9 Pillay describes propiconazole as a known fungicide.

10 Microban is using a known compound for its intended use.

11 A.4 (Claim 52)

12 Insofar as we can tell, the A.4 arguments are the same as the A.1
13 arguments.

14 Claim 52 falls with claim 23.

15 A.5 (Claim 33)

16 Claim 33 limits the fungicide to tolyldiiodomethylsulfone.

17 As the Examiner notes, tolyldiiodomethylsulfone is a known
18 microbiocide. Austin, col. 6:34-35 (diiodomethyl-paratolylsulphone—
19 another name for tolyldiiodomethylsulfone).

20 Microban is using a known compound for its known purpose.

21 Claim 33 falls with claim 23.

22 A.6 (Claim 53)

23 Claim 53 limits the fungicide to propiconazole, a known fungicide.

24 Claim 53 falls with claim 45 (A.2).

1 A.7 (Claim 41)

2 Claim 41 limits the fungicide to propiconazole, a known fungicide.

3 Claim 41 falls with claims 23 (A.1).

4 A.8 (Claim 55)

5 While Microban refers to "Claim 41" in argument A.8, it is believed
6 Microban intended to refer to "Claim 55."

7 Claim 55 limits claim 52 (not claim 41) to propiconazole, a known
8 fungicide.

9 Claim 55 falls with claim 52 (A.4).

10 A.9 (Claims 62 and 68)

11 In the Appeal Brief, Microban calls attention to the fact that
12 independent claim 62 calls for use of isothiazolinone and for leather
13 exposure prior to or concurrent with a first fat liquoring step. Appeal Brief,
14 pages 14-15.

15 The prior art reveals, and Microban does not deny, that
16 isothiazolinones are known industrial biocides. Pillay, col. 1:13-15.

17 Microbans use of isothiazolinones amounts to use of a known
18 compound for its intended purpose.

19 Microban also mentions that leather to be treated is exposed to the
20 antimicrobial composition prior to or concurrent with a first fat liquoring
21 step.

22 Pillay reveals that its combination of propiconazole and 2-MBT can
23 be used during all process stages in the tanning process in addition to those
24 stages where a known microbiological problem is occurring. Numerous
25 stages are described. In each stage, the combination may be a component of

1 the appropriate tanning liquor applied to the hide undergoing tanning.

2 Pillay, col. 5:52-62.

3 Microban has failed to establish that the Examiner erred in rejecting
4 claim 62.

5 Claim 68 falls with claim 62. Appeal Brief, page 14.

6 A.10 (Claim 52—sic Claim 63)

7 Claim 63 is misidentified as claim 52 in argument A.10. In context,
8 we think Microban is referring to claim 63 because it is not otherwise argued
9 in the Appeal Brief.

10 Claim 63 limits claim 62 to a Markush group of fungicides, one of
11 which is propioconazole, a known fungicide.

12 Claim 63 falls with claim 62.

13 A.11 (Claim 64)

14 Claim 64 limits claim 62 to a fungicide which is
15 tolyldiiodomethylsulfone, a known fungicide.

16 Microban is using a known fungicide for its intended purpose.

17 Claim 64 falls with claim 62.

18 A.12 (Claim 49)

19 Claim 49 depends from independent claim 45 and calls for a
20 composition which further comprises poly(oxyethylene-(dimethylimino)-
21 ethylene(dimethylimino)-ethylenedichloride (the "ethylenedichloride"
22 material).

23 Initially we will observe that in argument A.2, Microban indicates that
24 claim 49 stands or falls with claim 45.

1 In any event, Bryant reveals that the "ethylenedichloride" material,
2 also referred to as an "ionene" polymer, has known bactericidal and
3 fungicidal activity. Bryant, col. 1:54-60 and col. 3:19-21. While Bryant,
4 like Pillay, describes the use of a "synergistic" mixture of the
5 ethylenedichloride material along with a borate, nothing in Microban's claim
6 excludes the presence of a borate.

7 B.1 (Claim 48)

8 Microban indicates that claim 48 is being cancelled.

9 Accordingly, we need not address claim 48.

10 B.2 (Claims 42 and 56)

11 Claim 42 (dependent from claim 23) and claim 56 (dependent from
12 claim 45) call for a biguanide bactericide and a thiabendazole fungicide.

13 Rother reveals that thiabendazole is useful, particularly in
14 combination with other compounds, as a microbial material. Col. 1:55.

15 Microban is using a known compound for its intended use.

16 Other arguments presented by Microban in argument B.2 are
17 discussed in connection with Microban argument A.1.

18 Claim 42 falls with claim 23 (A.1).

19 Claim 56 falls with claim 45 (A.2).

20 B.3 (Claims 43 and 57)

21 Claim 43 depends from claim 23.

22 Claim 57 depends from claim 45.

23 Both claims 43 and 57 call for use of tebuconazole, a known
24 fungicide. Rother reveals the use of tebuconazole in microbial
25 compositions. Col. 1:43.

1 These two claims fall along with their respective independent claims.

2 B.4 (Claim 66)

3 In presenting argument B.4, Microban does not present an argument
4 not previously made.

5 Claim 66 falls with claim 62 (A.9).

6 B.5 (Claim 67)

7 In argument B.5, Microban does not present an argument not
8 previously made.

9 Claim 67 falls with claim 62 (A.9).

10 C.1 (Claims 40 and 54)

11 Claim 40 (dependent on claim 23) and claim 54 (dependent on claim
12 45) calls for the use of zinc 2-pyridinethiol-1-oxide as a fungicide.

13 Zinc 2-pyridinethiol-1-oxide, however, is a known microbial agent.
14 Lindner, col. 4:2 (zinc pyrithione—another name for zinc 2-pyridinethiol-1-
15 oxide). Also zinc pyrithione is taught as functionally equivalent to
16 propiconazole (col. 4:3) as an antimicrobial.

17 Microban is using a known compound for its intended purpose.

18 Claim 40 falls with claim 23 (A.1).

19 Claim 54 falls with claim 45 (A.2).

20 Additional observations

21 We take this opportunity to address "separate" arguments made in
22 Microban's Appeal Brief. The manner in which Microban presented
23 "separate" arguments has not been helpful.

24 For example in argument A.5, Microban says the following (Appeal
25 Brief, page 14):

1 Claim 33, depending from independent Claim 23, places
2 a limitation on the fungicide that it be tolyldiiodomethylsulfone.

3 Applicant [i.e., Microban,] reiterates in full its previous
4 remarks of Sections A.1 through A.4, *supra*, regarding the prior
5 art teachings, the inferences/creativity of the person having
6 ordinary skill in the art, and the impropriety of using a
7 "functional" equivalence" basis for substitutions to synergistic
8 chemical combinations (both in general and in this specific
9 case).

10 For these same reasons, claim 33 is allowable over the
11 cited hypothetical combination.

12
13 What becomes apparent from argument A.5 is that no new or
14 additional argument is presented.

15 The rules authorize an appellant to argue separate claims, but when
16 doing so, the appellant should add a new argument when addressing separate
17 claims.

18 We offer the following suggestion based on the following assumed set
19 of facts: (1) an application has independent claim 1 and dependent claim 2
20 (dependent from claim 1), (2) both claims are rejected over the prior art and
21 (3) applicant elects to argue the separate patentability of each claim. Under
22 these circumstances, applicant should argue the patentability of claim 1. In
23 arguing the separate patentability of claim 2, appellant should assume that
24 the argument with respect to claim 1 was not convincing (if it had been, the

1 claim 2 would also be patentable over the prior art). Appellant should then
2 proceed to address why claim 2 is patentable even if claim 1 is unpatentable.

3 As is readily apparent, Microban argument A.5 does not assume that
4 arguments A.1 through A.4 have not succeeded.

5 One reason for following the model we discuss above is to minimize
6 the chance that the Examiner or the Board or both will overlook an
7 argument. While we will not reproduce Microban arguments A.1 and B.2
8 and C.1, we have to say it was difficult for us (and perhaps for the
9 Examiner) to figure out what additional argument, if any, was presented. All
10 three arguments address (1) the "synergism" argument, (2) the teaching
11 away argument, and (3) the *Takeda* argument. These three arguments need
12 not have been repeated in argument B.2 and C.1. By contrast, the additional
13 Rother argument (B.2) (Appeal Brief, page 17, third paragraph from the
14 bottom) and the additional Lindner argument (C.1) (Appeal Brief, bottom of
15 page 21) were buried in a way that increased the chance that they would be
16 overlooked.

17 Another unrelated suggestion we make to Microban is to file its brief
18 with double spacing or 1½ line spacing and not single spacing. Reading the
19 Appeal Brief was very difficult.

20 Microban's additional arguments

21 We have considered Microban's remaining arguments and find none
22 that warrant reversal of the Examiner's rejection(s). *Cf. Hartman v.*
23 *Nicholson*, 483 F.3d 1311, 1315 (Fed. Cir. 2007).

1 D. Decision

2 Microban has not sustained its burden on appeal of showing that the
3 Examiner erred in rejecting the claims on appeal as being unpatentable under
4 35 U.S.C. § 103 over the prior art.

5 Upon consideration of the appeal, and for the reasons given herein,
6 it is:

7 ORDERED that the decision of the Examiner rejecting
8 claims 23-28, 31-35, 37-47 and 49-68 over the prior art is *affirmed*.

9 FURTHER ORDERED that no time period for taking any
10 subsequent action in connection with this appeal may be extended under
11 37 C.F.R. § 1.136(a)(1)(iv) (2008).

AFFIRMED

ak

cc (via First Class mail)

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